# 4448 - Network Traffic Analysis System

Business Case




Telecommunications Division

Initial: June 11, 2004
Revised: 4/28/05

## Executive Overview

The key objectives for the Vantage Solution are the following:

- Decrease current and future WAN cost by analyzing down to the application layer.
- Identify Who, What, When, and How much traffic is consuming WAN resources.
- Be able to pinpoint bottlenecks and slowdowns in a timely manner.
- Provide reports with information that is valuable to Network, Server, Workstation, DBA's and application teams.

### Current Situation and Background

In recent years the State of North Dakota government network has evolved from a relatively small frame-relay data network, into the massive multi-million dollar enterprise network; STAGENet. Its current composition provides data, voice and guaranteed video service to our state agencies, political sub-divisions, K-12 schools, 14 colleges and universities, health units, public libraries and numerous other entities.

Network growth is a positive effect of the progress North Dakota has made to connect its citizens. However the speed of growth and current size of the network has left ITD, the chosen stewards of the network, with limited visibility into the network.

The purpose of this initiative is to identify a solution or system, which will provide network analysis on an enterprise level, giving stakeholders greater visibility into the network, and enable future cost savings. Additional modules are desired which will aid in active troubleshooting application problems, analogous to a distributed "sniffer". This visibility will enable faster more accurate troubleshooting of problems and give the ability to provide granular reports about the enterprise network. The need for current and timely reports is a business essential to network administration, accounting, planning and SLAs. Reports will provide detailed information on who is using the network, and how it is being used, providing valuable information as to which applications and protocols are being used, in which locations, and in what amount.

We currently lack a comprehensive set of tools to obtain current and historical empirical data and to analyze and pinpoint application traffic/bottlenecks with in the network.

**Application Performance Management Solution**

Compuware Corp.'s Application Performance Management (APM) Automation package will enable ITD to identify, report and resolve performance problems in production quickly and effectively.

The proposed Vantage (APM) solution includes:

## Network Vantage

Network Vantage is a tool that allows measuring and tracking of Outlook and other applications' network response times and performance. The product consists of a central management console and multiple data collection probes that are placed strategically throughout the network. Network Vantage then automatically discovers applications and tracks end-to-end conversations 24 hours a day, 7 days a week, non-intrusively. The data is stored by time intervals and uploaded to the management console at scheduled times. The information can then be viewed, published via hard copy, or generate Web based reports. Several reports can be generated such as traffic loads and response times.

| Network Vantage CAN |
| --- |
| • Measure data flow and response times for applications<br>• Report response times against SLAs<br>• Set alarm levels based on response time and application availability<br>• Troubleshoot network problems even after they have occurred<br>• Non-intrusively track end-to-end conversations 24 hours a day<br>• Project future needs as more applications are added to the network |

## Performance Optimization

Currently, ITD is able to report on network utilization and error rates. However, these tools do not specifically identify the actual applications using the bandwidth. With the information captured by Network Vantage, both data flow and response times for each application can be measured. With Network Vantage, more proactive measures can be taken to insure good response times for Outlook, Roap, Web, etc. and report those response times against the service level agreements.

## Capacity Planning

By collecting and storing the application data, the historical data can be used to project future needs as more applications are added to the network. Network upgrades can be assessed based on the application needs for additional bandwidth, etc. Traffic loads can be projected when adding more clients using existing applications. Traffic loads for new applications can be measured at earlier stages to make sure resources are available for the additional loads.

As new applications are developed, stress testing will be more meaningful. Network Vantage has the ability to report resources used during stress testing and the ability to show how additional resources could be used for additional clients doing the same functions.

### Troubleshooting

The historical data collected over time can also assist in troubleshooting network problems after they have occurred. Many times when a network problem is reported, the conditions have changed and the problem no longer exists to trace. By collecting data 7 by 24, we can look back at the time period in question, and possibly identify what caused the problem. Currently, ITD has no way to look at historical information. This would be very useful for weekend problems or "*after hour*" problems reported as much as 48 hours later.

Because this software looks at only packet header information, security and encryption are not compromised.

Network Vantage will help eliminate the "trial and error" process for correcting network bottlenecks and pinpoints response issues.

## **Additional Network Vantage Justification (see ROI document Pg 11)**

### Cost Savings

Defer or eliminate costly network/hardware upgrades by optimizing existing network investments (traffic analysis by application/server, segment, switch):

- Optimize bandwidth usage/distribution
- Analyze server placement
- Verify switch configuration/performance
- Optimize LAN segmentation
- Eliminate unauthorized and non-business applications
- Identify bandwidth "hogs"
- Reduce network downtime, improve application availability
- Pinpoint network "hot spots" (traffic jams, poor response time)
- Identify and correct slow downs before availability is impacted
- Continuous data collection to spot trends

### Intangible Savings

- Gain better control of the network through continuous application analysis
- Improve user service (establish and report on service levels), pro-active action
- Prototype new client/server applications, eliminating the surprises of new applications on the network

- Plan ahead for network expansion based on application growth with data to justify
- Eliminate the “trial and error” process for correcting network bottlenecks (buying the wrong thing)
- Verify security policies (only authorized users accessing certain servers)
- Verify adherence to software licenses
- Reduce network fire fighting by becoming more proactive with application performance data
- Utilize scarce network experts for higher-level tasks, i.e. planning
- Enhance morale and job satisfaction of network support staff by providing state-of-the-art tools to do the job
- Improve cooperation of network, DBA, server, applications staff - less finger pointing with accurate information

## Application Vantage

As an additional analysis tool that compliments Network Vantage, Application Vantage will allow ITD to have the ability to track an actual transaction from the time it is started from the clients PC to when it has returned from the server. The information acquired during this transaction can then be analyzed and performance tuned. Unlike Network Vantage, the data needed must be specifically requested.

Application Vantage helps identify and resolve application performance problems in production. By providing detailed troubleshooting analysis, Application Vantage helps pinpoint the causes of poor end-user response times for critical client/server and e-business applications.

The data gathering could be helpful in checking out new applications or enhancements to existing applications. System testing by programmers or stress testing of applications could be more meaningful with this report showing which calls or code might use more resources. This reporting helps database analysts pinpoint where database indexes should be used to improve response times. Routine reviews of software could be scheduled and trend analysis could be completed by application.

With Application Vantage, it's easy to answer key questions such as:

- What is causing poor performance of critical e-business transactions? Is the desktop, network, server or application causing the slowdown?
- What changes will provide the most improvement to response times—more bandwidth, moving web servers, tuning the application or more CPU power?
- Which application calls or database queries are taking too long?
- What level of performance are internal/external customers experiencing?

## Pinpoint the reasons for application slowdowns

Often when slowdowns of mission-critical applications occur, functional groups within the IT department must work together to determine the cause. Application Vantage will provide a unified view of network, application and systems behavior to clearly identify where problems are occurring.

Once a problem is isolated, Application Vantage displays a visual representation of application transactions to reveal bottlenecks. The patent-pending Thread Analysis and Bounce Diagram identify the timing and sequence of each transaction component traversing the network through intuitive drill-down reports.

Combining Thread Analysis and Bounce Diagram graphical displays with detailed backup tabular data provides information essential for the quick resolution of issues concerning poor network and application performance. Database administrators can see individual SQL statements, their duration, and how long the server is spending on these statements. Webmasters can see how pictures and animations are affecting front-end performance. Network engineers can see packet detail of a specified exchange and know which network component to address. All of this is made possible by capturing real data from live transactions on the network.

### Unique multi-point views of live transactions

Application Vantage offers the ability to examine live transactions simultaneously from the user and server's perspective. By merging multiple viewpoints, Application Vantage segments transactions into client, server and network time. This information is invaluable when locating the cause of performance slowdowns.

### Take the pulse of e-business applications

The performance of mission-critical e-business applications can mean the difference between success and failure for a business. Application Vantage provides an early warning system to head off potential catastrophic slowdowns. Through early capture of key transactions in a production environment, you get up-to-the-minute insight into the internal/external customer experience. Best of all, when response time thresholds are exceeded, Application Vantage provides the ability to compare the baseline working the model with the failed scenario.

# ITD Action Plan

| | |
|---|---|
| Pricing Proposal from Compuware | 3-8-2005 |
| ITD & Compuware Executive exchange | Ongoing |
| ITD Signs Product Schedule | Beneficial if done before 6-30-05 |
| Implementation | July-Sept of 2005 |

The following are case studies provided by Compuware Corp.

*How **Vantage** helps our customers

Here are some brief examples of how **Vantage** has helped solve real everyday problems at some of our customer sites.

# American Express Financial Advisors

American Express is using **Vantage** for a number of purposes, but one is to profile and design their subnets and rings for optimum throughput. They are getting great results using Vantage to see the number of hops the users are going through to get from point A to point B. Vantage lets them see and profile the traffic paths so they can minimize the network hops from the clients to the servers.

# Federated Insurance

"Recently, I've been testing several application monitoring packages for Federated. In all honesty, I haven't found anything that analyzed the traffic info as well as **Vantage**. We have been getting some very interesting reports from it. For example, one of our other network management packages reported extremely high utilization between our home office and our Minneapolis office. Using our **Vantage** WAN probe, I was able to drill down to that DLCI and discover that one of our installers was testing an application across the WAN during peak login times. Without **Vantage**, we would have known of the high utilization, but wouldn't have had any way to determine the cause".

# United Health Care

UHC was experiencing network slow downs two times a week at approximately the same time each day. **Vantage** help them pro-actively spot the trend as it was impacting their production applications, and then they were able to drill down and find the root cause very quickly. They found that 300 workstations were doing an FTP file transfer from the same web site. The web site was Mcafee Software, makers of anti-virus software. All the workstations had been configured to automatically go to the Mcafee web site and download updates to the virus protection software. It was a good idea, but just too many workstations were doing it at the same time and during prime time production hours. The solution was to reconfigure the workstations to check the Mcafee web site at different, non-peak times.

# Henry Ford Health Systems

"We had a network slowdown at a site that we could not initially resolve. We looked for a heavy user after a few days of this nonsense. We found several users who had been downloading several gigabytes to and from the Internet

daily. We obtained their computer name, IP and MAC address. We also found that the web site they were using was an online disk storage site. All these "discoveries" were made possible by using **Vantage** and nothing else. We went to our firewall and removed the ability to access this site. Problem solved".

## Piper Jaffery

- "We use **Vantage** to review CIRs to keep AT&T honest".

- "Typically, we see application flow as the problem. For example, as users were trying to log on, performance was poor. Using **Vantage**, we saw a non-typical 30mb update occurring for a particular application that was hurting performance for others. We called the user and quickly resolved the issue".

- "Performance problems are often reported as “the network sucks”. Server backups across the WAN are suppose to be finished by 8:00 a.m., but sometimes they are still going on. When this happens, response time is impacted and **Vantage** reveals the cause immediately".

- "We were surprised to see SNMP traffic as the number one talker across the WAN. We quickly found that Cabletron Spectrum was downloading router configuration tables every minute".

## Cargill

Cargill LAN Support uses **Vantage** for trouble shooting. They like the ability to see what is happening during particular time intervals. During one time of reported poor performance, they quickly discovered that DBA’s were backing up a 4.5 gigabyte Oracle database in the middle of the day! Problem was quickly found and corrected.

## Australia Dept. of Defense

A large government defense agency immediately discovered that 40% of their network traffic was overhead (broadcast, etc.). Using **Vantage** to identify the overhead “applications” and portions of the network impacted, they were able to tune their network down to only 4% overhead. They reported a payback of one month on **Vantage** just for this one use.

## State of Wisconsin

The State of Wisconsin used the bi-directional traffic report in the pre-production planning stage for a new Oracle application being rolled out (statewide across 56K links). Upon running the report they quickly discovered that the Oracle database was downloading the entire database file to the client at log-on . This would cause the application to fail upon deployment; thus we saved them from

application failure upon initial deployment. The report was shared with the Oracle development staff and they made the appropriate changes to the application necessary for the application to function across their WAN environment.

# Iowa Farm Bureau

In a very short time, Iowa Farm Bureau said they discovered apps they didn't even know were on their network, servers that were getting "pummeled", and a fax server that was slowing down the network everyday at 1 and 3 as it ran a batch process! (P.S. This sites has Cisco CAT5000 switches and uses the "span VLAN" approach to monitor the switch using a Fast Ethernet Super Monitor).

# Sprint

The WAN services department recently upgraded to T1.5. They also asked the Director to approve a budget request to upgrade to ATM and procure new Cisco Switches and routers in year 2000 to help improve the performance of their home grown manufacturing application. After reviewing 1 hour and 40 minutes of **Vantage** data we discovered during peak hours of the day on 2% of the total bandwidth was being used (therefore ATM upgrades were not needed). Application performance was being impacted by the small (96) byte count size. By changing the recorded 96-packet size to the industry standards for Ethernet and the default "encapsulation" feature on the Motorola routers was causing additional latency. Benefit - Saved approx. $100k investment in unnecessary WAN upgrades and deferred hardware costs until more analysis is performed.

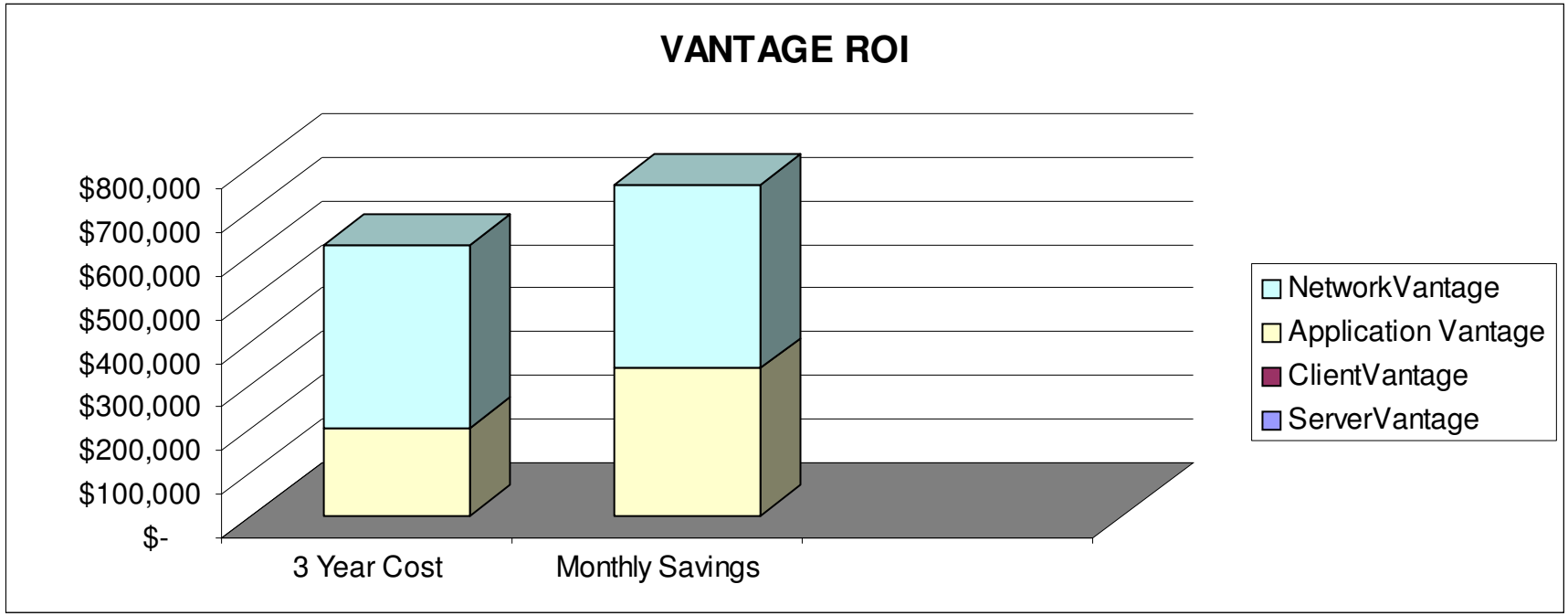
## Lens Crafters

***$150,000 Savings*** - We have an application on our 175 remote laptops that were downloading 2.5 MB of files to make a connection to the database (Sybase Open Client) every time they dialed into our RAS. At 56K, that added about 10-15 minutes to each download. These files should have been installed locally, but the developer had neglected to do so. With the volume of downloads from our remote users, the telecom costs alone would work out to be about $150,000/year. Since we discovered this, we have made changes to have the Sybase Open Client software installed locally and are rolling it out as we speak.

***$1.5 million Savings*** - We took a look at the process the new application (POS) software we are writing performs when we retrieve customer information. The initial transaction size was on average 56K worth of data. This worked out to be about 45sec - 1 minute with latency. We challenged the developers to do better. We changed the transport layer from Oracle SQL*Net to XML and dropped the transaction size to 23K. We then said, "Hey, this is all text data, let's compress it with gzip and see what happens". It dropped to 3.9K. Considering the number of times we will look up customers over the life of this software and the fact we are paying $15/GB transferred, I would say that we are, conservatively, saving 1.5 million over 5 years or so.

# State of North Dakota NetworkVantage and Application Vantage ROI 6/2/20(

| VANTAGE Component | 3 Year Cost | Monthly Savings | Payback in Months |
|---|---|---|---|
| ServerVantage | $ - | $ - | 0.0 |
| ClientVantage | $ - | $ - | 0.0 |
| Application Vantage | $ 200,000 | $ 336,021 | 0.1 |
| NetworkVantage | $ 420,000 | $ 421,438 | 0.4 |
| ***Total*** | **$ 620,000** | **$ 757,459** | **0.8** |



# NetworkVantage Return on Investment 6/2/2004

**I. PROBLEM RESOLUTION TIME (TROUBLE SHOOTING PERFORMANCE PROBLEMS)**

Example: United Health Care (Minneapolis) utilized NetworkVantage to quickly find large amounts of IPX/SNMP traffic which was bringing the network to its knees. Novell and Deloitte & Touche had come in to audit license compliance and turned on ManageWise discovery which triggered the problem. NetworkVantage found the problem, in one hour, and justified their NetworkVantage investment. The cost of this one problem was estimated at $40,000 a month.

| | Number of Staff | Trouble Shooting Hours/wk. | Est. % Reduction | Hourly Rates | Trouble Shooting Hours/mo. | Savings per month |
|---|---|---|---|---|---|---|
| **NETWORK STAFF** | 8 | 15 | 25% | $30 | 480 | $3,600 |
| **SERVER STAFF** | 10 | 5.25 | 15% | $30 | 210 | $945 |
| **DESKTOP STAFF** | 4 | 8 | 15% | $30 | 128 | $576 |
| **DBA's** | 10 | 15 | 10% | $30 | 600 | $1,800 |
| **APPLICATIONS STAFF** | 40 | 5 | 15% | $30 | 800 | $3,600 |
| ***TOTAL REDUCTION IN PROBLEM RESOLUTION TIME*** | | | | | | ***$10,521*** |

**II. INFRASTRUCTURE UPGRADES COST AVOIDANCE THROUGH MONITORING APPLICATION USAGE**

Example: Motorola was able to avoid $400K in WAN upgrades that were requested by the services department to improve application performance. A 2 hour NetworkVantage collection showed a performance issue with a 96 byte packet size. By reducing it to industry standards, NetworkVantage saved them significant time and money.

| | Annual Cost | Est. % Reduction | Monthly Cost | Savings per month |
|---|---|---|---|---|
| **CURRENT WAN COST** | $6,600,000 | 10% | $550,000 | $55,000 |
| **WAN BANDWIDTH UPGRADE BUDGET** | $0 | 25% | $0 | $0 |
| **LAN BANDWIDTH UPGRADE BUDGET** | $20,000 | 10% | $1,667 | $167 |
| **INTERNET USAGE BUDGET** | $40,000 | 20% | $3,333 | $667 |
| **SERVER UPGRADE BUDGET** | $30,000 | 20% | $2,500 | $500 |
| ***TOTAL INFRASTRUCTURE SAVINGS*** | | | | ***$56,333*** |

**III. END USER PRODUCTIVITY GAINS**

Some of the things we have to do to make the business we have today stronger and better and have a better value proposition are absolutely going to be built on the back of the Internet strategy and other e-business techniques (Michael McCallister) Application service levels must be measured, tracked and proactively delivered to the end user community.

| | Avg. Hours per User per Month | Number of Users Impacted | Avg. User Hourly Rate | Est. % Reduction | Total Monthly Cost | Savings per month |
|---|---|---|---|---|---|---|
| **WAIT TIME FOR PROBLEM RESOLUTION** | 1.5 | 5000 | $30 | 15% | $225,000 | $33,750 |
| **NON-BUSINESS INTERNET USE** | 10 | 5000 | $30 | 20% | $1,500,000 | $300,000 |
| ***TOTAL END USER PRODUCTIVITY GAINS*** | | | | | | ***$333,750*** |

## IV. REDUCED BUSINESS LOSS

E-Business Without Performance Is No Business "Application failures on the Internet, whether functional or performance related, are not only visible but embarrassing in a way that internal application failures are not." *Gartner Group*

| | Hourly Downtime Cost | Est. Lost Hours per year | Est. % Reduction | Savings per year | Savings per month |
|---|---|---|---|---|---|
| **ESTIMATED BUSINESS LOSS** | $500,000 | 5 | 10% | $250,000 | $20,833 |

***TOTAL BUSINESS LOSS IMPACT*** ***$20,833***

## SUMMARY OF NetworkVantage ROI

This is for a 3 year (36 month) period.

| | | | ***Notes:*** |
|---|---|---|---|
| **A** | NetworkVantage Software | $250,000 | Taps, Probes, and Manager (Est.) |
| **B** | Implementation Services | $50,000 | 5 weeks on-site Expenses Included |
| **C** | 3 YEARS OF MAINTENANCE | $120,000 | All software |
| **D** | | | |
| **E** | **TOTAL COST OVER 3 YEAR** | **$420,000** | A+B+C+D |
| | | | |
| **F** | OVERALL MONTHLY SAVINGS | $421,438 | I + II + III + IV |
| **G** | MONTHLY COST OF PRODUCT | $10,278 | E / 36 months |
| **H** | MONTHLY LABOR COST TO USE | $1,250 | 25 hours x $50 |
| **I** | **NET SAVINGS PER MONTH** | **$409,910** | F - G - H |
| **J** | **ANNUAL SAVINGS** | **$4,918,916** | I * 12 |
| **K** | **PAYBACK MONTHS** | **$0** | E / (F - H) |

***ANNUAL SAVINGS*** ***$4,918,916***

***PAYBACK TIME IN MONTHS*** ***0.4***

## Intangible Savings

Gain better control of the network through continuous application monitoring

Improve user service (establish and report on service levels), proactive action
Prototype new client/server applications, eliminating the surprises of new applications on the network

Plan ahead for network expansion based on application growth with data to justify

Eliminate the "trial and error" process for correcting network bottlenecks (buying the wrong thing)

Verify security policies (only authorized users accessing certain servers)

Verify adherence to software licenses

Reduce network fire fighting by becoming more proactive with application performance data

Utilize scarce network experts for higher-level tasks, i.e. planning

Enhance morale and job satisfaction of network support staff by providing state-of-the-art tools to do the job

Improve cooperation of network, DBA, server, applications staff - less finger pointing with accurate information

# Application Vantage Return on Investment 6/2/2004

**I. IMPROVED SUPPORT STAFF PRODUCTIVITY**

Network performance analysis is a function typically performed by senior, highly-skilled, highly paid staff. The productivity improvement gained with Application Vantage means that the staff has more time to spend on additional high-value projects. In one example, an analysis that took an engineer 3 weeks can now be performed in a single week using Application Vantage.

| | Number of Staff | Trouble Shooting Hours/wk. | Est. % Reduction | Hourly Rates | Trouble Shooting Hours/mo. | Savings per month |
|---|---|---|---|---|---|---|
| **NETWORK STAFF** | 8 | 15 | 25% | $30 | 480 | $3,600 |
| **SERVER STAFF** | 10 | 5.25 | 15% | $30 | 210 | $945 |
| **DESKTOP STAFF** | 4 | 8 | 15% | $30 | 128 | $576 |
| **DBA's** | 10 | 15 | 10% | $30 | 600 | $1,800 |
| **APPLICATIONS STAFF** | 40 | 5 | 15% | $30 | 800 | $3,600 |
| | | | | | | |
| ***TOTAL SUPPORT STAFF PRODUCTIVITY GAINS*** | | | | | | ***$10,521*** |

**II. INFRASTRUCTURE UPGRADES COST AVOIDANCE THROUGH APPLICATION IMPACT ASSESSMENT**

For network bandwidth and servers, the issue is primarily one of cost versus performance. Predictive analysis of the expected performance using alternative configurations will yield either justification for the expenditure, or savings in the acquisition and support of unneeded bandwidth or servers. Likewise, production upgrades can be deferred if an application design issue is identified and corrected.

| | Annual Cost | Est. % Reduction | Monthly Cost | Savings per month |
|---|---|---|---|---|
| **CURRENT WAN COST** | $6,600,000 | 10% | $550,000 | $55,000 |
| **WAN BANDWIDTH UPGRADE BUDGET** | $0 | 25% | $0 | $0 |
| **LAN BANDWIDTH UPGRADE BUDGET** | $200,000 | 20% | $16,667 | $3,333 |
| **SERVER UPGRADE BUDGET** | $30,000 | 20% | $2,500 | $500 |
| | 0 | | | |
| ***TOTAL INFRASTRUCTURE SAVINGS*** | | | | ***$58,833*** |

**III. IMPROVED END USER PRODUCTIVITY**

The cost to a business of a poorly performing application can be substantial. In one example, long response times in a time tracking and billing application were causing up to 100 users to work long hours on a weekly basis. Using Application Expert and Application Vantage, they were able to isolate and correct the problem in the application, thus eliminating the extra labor hours.

| | Avg. Min. Saved per User per Day | Number of Users Impacted | Avg. User Hourly Rate | Total Hours/mo. Saved | Savings per month |
|---|---|---|---|---|---|
| **TIME SAVED WITH BETTER PERFORMANCE** | | | | | |

| | | | | | |
|---|---|---|---|---|---|
| Outlook | 1 | 20000 | $10 | 6,667 | $66,667 |
| WEB | 1 | 20000 | $10 | 6,667 | $66,667 |
| File Services | 1 | 20000 | $10 | 6,667 | $66,667 |
| Rope | 1 | 20000 | $10 | 6,667 | $66,667 |
| | 0 | 2000 | $40 | - | $0 |
| | | | | | |
| ***TOTAL END USER PRODUCTIVITY GAINS*** | | | | | ***$266,667*** |

**SUMMARY OF Application Expert and Application Vantage ROI**

This is for a 3 year (36 month) period.

| | | | ***Notes:*** |
|---|---|---|---|
| A | ApplicationVantage | $120,000 | 1 License with Unattend Capture Module |
| B | 3 YEARS OF MAINTENANCE | $60,000 | All software |
| C | Implementation Assurance | $20,000 | Two Weeks on site/ expenses included |
| D | **TOTAL COST OVER 3 YEARS** | **$200,000** | A+B+C |
| | | | |
| E | OVERALL MONTHLY SAVINGS | $336,021 | I + II + III |
| F | MONTHLY COST OF PRODUCT | $5,556 | D / 36 months |
| G | MONTHLY LABOR COST TO USE | $2,200 | 40 hours x $50 |
| H | **NET SAVINGS PER MONTH** | **$328,265** | E - F - G |
| I | **ANNUAL SAVINGS** | **$3,939,180** | H * 12 |
| J | **PAYBACK MONTHS** | **0** | D / (E - G) |
| | | | |

***ANNUAL SAVINGS*** ***$3,939,180***

***PAYBACK TIME IN MONTHS*** ***0.1***

**Intangible Savings**

Reduce network fire fighting by becoming more proactive with application performance data

Enhance morale and job satisfaction of network support staff by providing state-of-the-art tools to do the job

Prototype new client/server applications, eliminating the surprises of new applications on the network

Plan ahead for network expansion based on application growth with data to justify

Eliminate the “trial and error” process for correcting network bottlenecks (buying the wrong thing)

Utilize scarce network experts for higher-level tasks, i.e. planning

Improve cooperation of network, DBA, server, applications staff - less finger pointing with accurate information

Improved reputation of IT organization

Savings in long and expensive testing by providing a "reasonably good answer quickly"